

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A device for treating a cell suspension, comprising:  
a compartment containing a fluid comprising a suspension of hyperproliferative, undifferentiated, or virally infected cells;  
an ultrasound emitter configured to emit ultrasound having a frequency higher than 100 kHz at a power level that is less than 30mW/cm<sup>3</sup> for a duration sufficient to cause programmed cell death in said cells without causing significant cavitation or significantly heating the fluid; and; and  
~~a microbubble an emitter configured to emit ~~microbubbles with an average diameter of less than 1 mm~~ gas bubbles into the ultrasound field in the compartment.~~
2. (Currently Amended) The device according to Claim 1, wherein the ~~gas microbubbles~~ bubbles are selected from the group consisting of air and oxygen ~~microbubbles~~ bubbles.
3. (Previously Presented) The device according to Claim 1, wherein the compartment contains physiological fluid extracted from a mammal.
4. (Previously Presented) The device according to Claim 3, wherein the physiological fluid is selected from one or more of the group consisting of blood, plasma, serum, or cerebrospinal fluid.
5. (Currently Amended) The device according to Claim 1, wherein the average diameter of the gas ~~microbubbles~~ bubbles is less than 50  $\mu\text{m}$ .
6. (Currently Amended) The device according to Claim 5, wherein the average diameter of the gas ~~microbubbles~~ bubbles is less than 30  $\mu\text{m}$ .
7. (Currently Amended) The device according to Claim 1, wherein the ~~microbubble~~ emitter configured to emit gas bubbles is situated at the base of the compartment.
8. (Previously Presented) The device according to Claim 1, wherein the compartment comprises a plurality of ultrasound emitters configured to emit ultrasound continuously or intermittently.
9. (Previously Presented) The device according to Claim 1, further comprising an electromagnetic radiation emitter.

10. (Previously Presented) The device according to Claim 9, wherein the electromagnetic radiation emitter emits intermittent radiation at a frequency selected from one or more of the group consisting of ultraviolet radiation (UVA, UVB, UVC), infrared, and microwaves.

11. (Previously Presented) The device according to Claim 1, further comprising an apparatus to recover hyperproliferative, undifferentiated, or virally infected cells present in the treated cell suspension.

12. (Previously Presented) The device according to Claim 11, wherein the apparatus to collect hyperproliferative, undifferentiated, or virally infected cells is selected from the group consisting of a filter and a hydrocyclone.

13. (Previously Presented) The device according to Claim 1, further comprising a generator configured to supply power to the ultrasound emitter at less than 1 W/cm<sup>2</sup>.

14. (Currently Amended) A method of neutralizing, removing and/or preventing the growth of hyperproliferative undifferentiated, or virally infected cells suspended in a physiological fluid comprising:

emitting ultrasound having a frequency higher than 100 kHz into a compartment containing the physiological fluid to be treated at a power level that is less than 30mW/cm<sup>3</sup>; and

emitting gas ~~microbubbles having an average diameter of less than 1 mm~~ bubbles into the ultrasound field in the compartment containing the physiological fluid, such that the emission of ultrasound and ~~microbubbles~~ gas bubbles induces significant programmed cell death in the hyperproliferative, undifferentiated, or virally infected cells without causing significant cavitation or significantly heating the fluid.

15. (Currently Amended) The method according to Claim 14, wherein the gas ~~microbubbles~~ bubbles are not ozone ~~microbubbles~~ bubbles.

16. (Currently Amended) The method according to Claim 14, wherein the gas ~~microbubbles~~ bubbles are selected from the group consisting of air and oxygen ~~microbubbles~~ bubbles.

17. (Previously Presented) The method according to Claim 14, wherein the physiological fluid is administered to a mammal and/or extracted from a mammal.

Appl. No. : 10/533,679  
Filed : May 2, 2005

18. (Previously Presented) The method according to Claim 14, wherein the physiological fluid is selected from the group consisting of blood, plasma, serum and cerebrospinal fluid.

19. (Currently Amended) The method according to Claim 14, wherein the average diameter of the gas microbubbles bubbles is less than 50  $\mu\text{m}$ .

20. (Currently Amended) The method according to Claim 14, wherein the average diameter of the gas microbubbles bubbles is less than 30  $\mu\text{m}$ .

21. (Previously Presented) The method according to Claim 14, wherein the ultrasound emitted into the compartment does not generate a stationary field phenomenon.

22. (Previously Presented) The method according to Claim 14, further comprising emitting light having an electromagnetic radiation mainly in the visible range into the ultrasound field.

23. (Previously Presented) The method according to Claim 14, wherein the hyperproliferative cells are selected from the group consisting of tumor cells, bone marrow cells, stem cancer cells, and precancerous cells.

24. (Previously Presented) The method of Claim 14, wherein the hyperproliferative cells are leukemic cells.

25. (Previously Presented) The method of Claim 14, further comprising supplying power to the ultrasound emitter at less than 1 W/cm<sup>2</sup>.

26. (New) The method of Claim 14, wherein the average diameter of the gas bubbles is less than 1 mm.

27. (New) The device of Claim 1, wherein the average diameter of the gas bubbles is less than 1 mm.